

Ryohei SHIGEMATSU

(§371 of International Application PCT/JP04/13840)

IN THE DRAWINGS:

The attached sheets of drawings include requested changes marked in red to Figs. 13 and 14.

Also enclosed are replacement sheets that include Figs. 13 and 14, and replace the two original sheets including Figs. 13 and 14.

Attachments: Replacement Sheets (2)
Annotated Sheet Showing Changes (2)

IN THE ABSTRACT:

Please replace the abstract with the following abstract:

~~The present invention is intended to enable even a scanning-type actuator using an elastic body such as a leaf spring to easily detect a scan angle with high accuracy. To do so, the scanning-type actuator includes an undeformable moving portion (3) provided on a tip end of a leaf spring (2) connected to a fixed portion (1), two-phase photo-sensors (SR, SL) provided on both ends of the moving portion (3), respectively, encoder slit plates (4R, 4L) provided in lower portions of the respective two-phase photo-sensors (SR, SL) and including slits (4), an origin sensor (SC), and a processing unit (13) that calculates an angle of the moving portion (3) based on detection values of the two-phase photo-sensors (SR, SL), count values (nA, nB) obtained by resetting the origin sensor (SC), and a distance (L) between the two-phase photo-sensors (SR, SL).~~

A first sensor and a second sensor provided on both ends of a moving portion connected to a fixed portion via an elastic body detect displacements of the moving portion that is in an oscillating movement. An angle calculating unit calculates a displacement angle of the moving portion based on the displacements detected by the first sensor and the second sensor and a distance between the first sensor and the second sensor.

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REMARKS

The specification, claims, drawings and abstract have been amended in order to more particularly point out and distinctly claim the subject matter to which the applicants regards as their invention.

The above amendments are believed to place the specification, claims, drawings and abstract in proper condition for examination. Early and favorable action is awaited.

In the event that any fees are due in connection with this paper, please charge our Deposit Account No. 01-2340.

Respectfully submitted,

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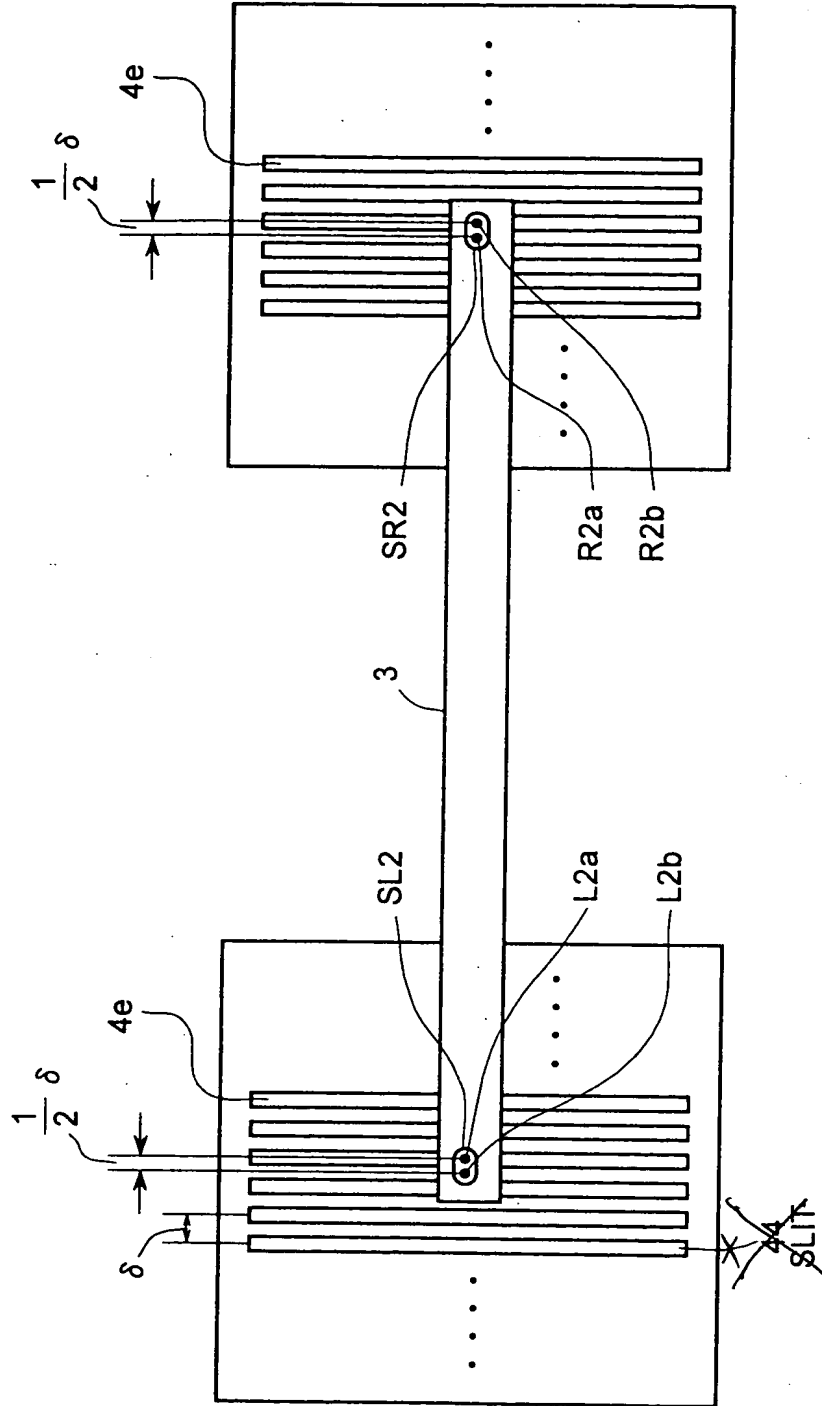
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FIG. 13



The diagram illustrates a linear encoder system. A vertical bar labeled 1 represents the **FIXED PORTION**. A horizontal bar labeled 2 represents the **MOVING PORTION**, which is tilted at an angle θ relative to the vertical. A vertical dashed line labeled 3 indicates the **ORIGIN SENSOR SC**. Two **ENCODER SLIT PLATE** units, labeled 4A and 4B, are positioned on either side of the origin sensor. Each unit contains a **TWO-PHASE PHOTO-SENSOR** (labeled 4B SL2 and 4B SL1 respectively). The photo-sensors are labeled A, A', B, and B'. A coordinate system with x and y axes is shown at the bottom right. A dimension $\Delta L \theta x$ is indicated between the photo-sensors. A label 44 SLIT is crossed out with a large X.